Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2020-01-20-52** **Date: 15-11-19**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP,
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.
Customer's Reference	:	BBMP/EE/BTP/WO/112/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	12-11-19
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	13-11-19
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	1.85	–
2	Finess by Air permeablity method (m^2/kg,Min)	348.6	225m^2/kg, Min
3	Density (gm/cc)	3.13	–
4	Standard Consistency (%)	28.5%	Not specified
5	Initial Setting time	135 minutes	Not less than 30 minutes
6	Final Setting time	245 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

Note:

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Vidyaranyapura Sub Division
BBMP, Bangalore-97

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Authorized Signatory
Technical Manager

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Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2020-01-20-52** **Date: 11-12-19**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.
Customer's Reference	:	BBMP/EE/BTP/WO/112/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	12-11-19
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6
Date of test	:	13-11-19
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	28.5N/mm^2	Not less than 27 N/mm^2
2	7 Days	39.0N/mm^2	Not less than 37 N/mm^2
3	28 Days	58.5N/mm^2	Not less than 53 N/mm^2

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2020-01-20-52** **Date: 15-11-19**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.
Customer's Reference	:	BBMP/EE/BTP/WO/112/2019-20
Source of Sample	:	Sample supplied by Agency
Sample condition	:	Satisfactory
Date of Receipt	:	12-11-19
Sample Type	:	40mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	12-11-19

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	215	215	1.4	98.6	90-100
3	20 mm	7455	7670	51.1	48.9	30-70
4	10 mm	4266	11936	79.6	20.4	10-35
5	4.75 mm	2844	14780	98.5	1.5	0-5
6	Pan	220	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2020-01-20-52** **Date: 15-11-19**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	11.9	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	12.3	
3	Specific Gravity	2.64	–
4	Bulk Density(Loose) (Kg/l)	1.41	–
5	Bulk Density(Compacted) (Kg/l)	1.47	–
6	Water Absorption(%)	0.23	–

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2020-01-20-52** **Date: 15-11-19**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.
Customer Reference	:	BBMP/EE/BTP/WO/112/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	12-11-19
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	12-11-19

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : **5000** **grams**

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	245	245	4.9	95.1	90-100
3	10 mm	2635	2880	57.6	42.4	25-55
4	4.75 mm	1780	4660	93.2	6.8	0-10
5	Pan	340	5000	100	0	–

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2020-01-20-52** **Date: 15-11-19**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	9.4	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	10.5	
3	Specific Gravity	2.66	–
4	Bulk Density(Loose) (Kg/l)	1.52	–
5	Bulk Density(Compacted) (Kg/l)	1.56	–
6	Water Absorption(%)	0.21	–
7	Aggregate crushing Value(%)	24.1	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	23.7	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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Technical Manager

Assistant Executive Engineer
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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2020-01-20-52** **Date: 15-11-19**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.

Customer's Reference : BBMP/EE/BTP/WO/112/2019-20

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 12-11-19

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

Date of test : 12-11-19

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	27	27	2.7	97.3	90-100	90-100	90-100	95-100
3	2.36 mm	55	82	8.2	91.8	60-95	75-100	85-100	95-100
4	1.18 mm	239	321	32.1	67.9	30-70	55-90	75-100	90-100
5	600 micron	205	526	52.6	47.4	15-34	35-59	60-79	80-100
6	300 micron	203	729	72.9	27.1	5-20	8-30	12-40	15-50
7	150 micron	191	920	92.0	8.0	0-10	0-10	0-10	0-15
8	Pan	80	1000	100.0	0.0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2020-01-20-52** **Date: 15-11-19**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.5	–
2	Specific Gravity	2.59	–
3	Material finer than 75 micron(%)	6.9	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

Note:
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Format No: CP/TF/01

TEST RESULTS OF STEEL

Lab ID	:	**CP-2020-01-20-52** **Date: 18-11-19**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.
Customer's Reference	:	BBMP/EE/BTP/WO/112/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	16-11-19
Sample Type	:	Sunvik
Reference to BIS codes	:	IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2012.
Date of test:	:	16-11-19

Sl.No	Identification of sample	Grade of the sample	Diameter of the steel bar	Weight of the sample	Yield stress	Tensile strength	Elongation	Bend test	Rebend test
			(mm)	(kg/m)	(N/mm2)	(N/mm2)	(%)		
1	Sunvik	Fe500	8	0.391	512	652	20.0%	Satisfactory	Satisfactory
2	Sunvik	Fe500	10	0.616	528	672	20.0%	Satisfactory	Satisfactory
3	Sunvik	Fe500	12	0.888	544	668	20.0%	Satisfactory	Satisfactory

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TEST REPORT OF PRECAST COVER SLAB

Lab ID : **CP-2020-01-20-52** **Date: 30-11-19**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.

Customer's Reference : BBMP/EE/BTP/WO/112/2019-20

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 26-11-19

Sample Type /Size : Precast Cover Slab (100mm)

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete

Date of test : 26/11/2019

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm^2)	(N/mm^2)	(N/mm^2)
1	Cover Slab-1	75.51	100.48	1.116	4477	80.9	18.1	16.8	21.0
2	Cover Slab-2	75.49	100.52	1.122	4475	82.3	18.4	17.1	21.4
3	Cover Slab-3	75.50	100.51	1.118	4476	81.5	18.2	16.9	21.2

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2020-01-20-52** **Date: 20/12/2019**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.

Customer's Reference : BBMP/EE/BTP/WO/112/2019-20

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 25-11-19

Customer ID : Drain Bottom Slab Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 20/12/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Bottom Slab Concrete	M20	22/11/2019	20/12/2019	151.21 X 151.68 X 150.30	22936	**8.118**	540.4	23.6	23.2
2	Drain Bottom Slab Concrete	M20	22/11/2019	20/12/2019	149.91 X 151.98 X 151.12	22784	**8.303**	503.6	22.1	
3	Drain Bottom Slab Concrete	M20	22/11/2019	20/12/2019	150.30 X 150.86 X 149.67	22673	**8.358**	541.8	23.9	

Note:

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2020-01-20-52** **Date: 29/11/2019**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.

Customer's Reference : BBMP/EE/BTP/WO/112/2019-20

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 25-11-19

Customer ID : Drain Bottom Slab Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 29/11/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Bottom Slab Concrete	M20	22/11/2019	29/11/2019	149.59 X 149.89 X 150.90	22422	**8.119**	407.5	18.2	18.2
2	Drain Bottom Slab Concrete	M20	22/11/2019	29/11/2019	150.40 X 149.94 X 151.71	22551	**8.720**	410.1	18.2	
3	Drain Bottom Slab Concrete	M20	22/11/2019	29/11/2019	149.79 X 151.45 X 149.44	22684	**8.410**	416.6	18.4	

Note:

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2020-01-20-52** **Date: 20/12/2019**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.

Customer's Reference : BBMP/EE/BTP/WO/112/2019-20

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 25-11-19

Customer ID : Drain Bottom Slab Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 20/12/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Bottom Slab Concrete	M20	22/11/2019	20/12/2019	151.68 X 149.24 X 150.94	22636	**8.118**	542.2	24.0	23.3
2	Drain Bottom Slab Concrete	M20	22/11/2019	20/12/2019	151.10 X 149.39 X 150.32	22574	**8.303**	505.8	22.4	
3	Drain Bottom Slab Concrete	M20	22/11/2019	20/12/2019	151.90 X 150.28 X 150.88	22828	**8.358**	536.6	23.5	

Note:

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2020-01-20-52** **Date: 05/12/2019**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.

Customer's Reference : BBMP/EE/BTP/WO/112/2019-20

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 30-11-19

Customer ID : Drain Side Wall Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 05/12/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Side Wall Concrete	M20	28/11/2019	05/12/2019	149.15 X 149.63 X 150.72	22316	**8.119**	423.4	19.0	18.8
2	Drain Side Wall Concrete	M20	28/11/2019	05/12/2019	150.45 X 149.15 X 151.35	22439	**8.720**	413.2	18.4	
3	Drain Side Wall Concrete	M20	28/11/2019	05/12/2019	150.97 X 150.34 X 151.03	22696	**8.410**	428.8	18.9	

Note:

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Assistant Executive Engineer
Vidyaranyapura Sub Division
BBMP, Bangalore - 97

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Technical Manager

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2020-01-20-52** **Date: 26/12/2019**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.

Customer's Reference : BBMP/EE/BTP/WO/112/2019-20

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 30-11-19

Customer ID : Drain Side Wall Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 26/12/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Side Wall Concrete	M20	28/11/2019	26/12/2019	151.41 X 150.54 X 150.58	22793	**8.118**	528.1	23.2	22.9
2	Drain Side Wall Concrete	M20	28/11/2019	26/12/2019	149.23 X 150.99 X 150.59	22531	**8.303**	507.1	22.5	
3	Drain Side Wall Concrete	M20	28/11/2019	26/12/2019	151.44 X 151.11 X 150.64	22884	**8.358**	530.1	23.2	

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2020-01-20-52** **Date: 05/12/2019**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.

Customer's Reference : BBMP/EE/BTP/WO/112/2019-20

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 30-11-19

Customer ID : Drain Side Wall Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 05/12/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Side Wall Concrete	M20	28/11/2019	05/12/2019	152.00 X 150.56 X 151.58	22885	**8.119**	413.9	18.1	18.1
2	Drain Side Wall Concrete	M20	28/11/2019	05/12/2019	150.29 X 149.16 X 150.94	22417	**8.720**	406.1	18.1	
3	Drain Side Wall Concrete	M20	28/11/2019	05/12/2019	151.41 X 151.87 X 149.71	22995	**8.410**	419.0	18.2	

Note:

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Technical Manager

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2020-01-20-52** **Date: 26/12/2019**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.

Customer's Reference : BBMP/EE/BTP/WO/112/2019-20

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 30-11-19

Customer ID : Drain Side Wall Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 26/12/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Side Wall Concrete	M20	28/11/2019	26/12/2019	149.23 X 149.95 X 151.14	22377	**8.118**	522.8	23.4	23.2
2	Drain Side Wall Concrete	M20	28/11/2019	26/12/2019	150.34 X 149.57 X 150.31	22486	**8.303**	500.2	22.2	
3	Drain Side Wall Concrete	M20	28/11/2019	26/12/2019	151.29 X 150.79 X 150.85	22814	**8.358**	544.8	23.9	

Note:

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TEST RESULTS OF GRADATION FOR WMM

Lab ID : **CP-RW-2020-01-20-52** **Date: 29-11-19**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.

Customer Reference : BBMP/EE/BTP/WO/112/2019-20

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 27-11-19

Type of Mix : WMM (Wet Mix Macadam)

Date of test : 27-11-19

Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	315	315	2.9	97.1	95-100
22.4	2259	2574	23.4	76.6	60-80
11.2	2179	4753	43.2	56.8	40-60
4.75	2251	7004	63.7	36.3	25-40
2.36	1621	8625	78.4	21.6	15-30
0.6	623	9248	84.1	15.9	8-22
0.075	1338	10586	96.2	3.8	0-5

Note:-

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BBMP, Bangalore

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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

Lab ID	:	**CP-RW-2020-01-20-52** **Date: 29-11-19**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.
Customer Reference	:	BBMP/EE/BTP/WO/112/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	27-11-19
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	27-11-19

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	300.2	300.2
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	73.9	74.0
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	225.9	225.8
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.4	0.4
5	Aggregate impact value	(B/A)*100	24.6	24.7
6	Aggregate impact value (Mean of two tests)	Pecentage	24.6	

Note:-
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All information Furnished by Customer/ Representative
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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2020-01-20-52** **Date: 29-11-19**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.
Customer Reference	:	BBMP/EE/BTP/WO/112/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	27-11-19
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	27-11-19

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.8%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.5%	
Combined Flakiness and Elongation Index for WMM	25.3%	

Note:-
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TEST RESULTS OF GRADATION FOR BM
(IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	**CP-RW-2020-01-20-52** **Date: 12-12-19**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.
Customer Reference	:	BBMP/EE/BTP/WO/112/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	10-12-19
Sample ID No	:	2018-01-03-01/01
Type of Mix	:	BM-Plant (Bituminous Macadam)
Date of test		10-12-19
Weight of Sample(gm)	:	5000

IS Sieve Size(mm)	Weight Retained(gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0	100	100
19	165	165	3.3	96.7	90-100
13.2	512	677	13.5	86.5	56-88
4.75	2759	3436	68.7	31.3	16-36
2.36	911	4347	86.9	13.1	4-19
0.3	358	4705	94.1	5.9	2-10
0.075	232	4937	98.7	1.3	0-8
PAN	63	5000	100.0	0.0	0

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End of Report

PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS MACADAM

Lab ID	:	**CP-RW-2020-01-20-52** **Date: 13-12-19**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.
Customer Reference	:	BBMP/EE/BTP/WO/112/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	10-12-19
Sample ID No	:	2018-01-03-01/01
Type of Mix	:	BM (Bituminous Macadam)
Date of test	:	10-12-19

Table 500-6 : Physical Requirements fo Coarse Aggregate for Bituminous Macadam

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	13.8	Combined Flakiness & Elongation Index for BM is Maximum 35%	IS:2386 Part I
	Elongation Index	7.2		
Strength	Aggregate Impact Value	25.2	Maximum 30%	IS:2386 Part IV
Specific gravity	Specific gravity	2.51	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.17	Maximum 2%	IS:2386 Part III

Note:-
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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2020-01-20-52** **Date: 13-12-19**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.
Customer Reference	:	BBMP/EE/BTP/WO/112/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	10-12-19
Sample ID No	:	2018-01-03-01/01
Type of Mix	:	BM(Bitumnous Macadam)
Date of test	:	10-12-19

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.2	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

Note:-
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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL |
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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BM (IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	**CP-RW-2020-01-20-52** **Date: 24-12-19**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.
Customer Reference	:	BBMP/EE/BTP/WO/112/2019-20
Source of Sample	:	Sample supplied by Agency
Date of Receipt	:	23-12-19
Type of Mix	:	BM (Bituminous Macadam)
Date of test	:	23-12-19

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	470	465
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	6	7.00
4	Average percentage	%	6.50	

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Lab ID : **CP-RW-2020-01-20-52** **Date: 24-12-19**

AFTER EXTRACTION(Trail-1)

Weight of Sample : 470 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0.0	100.0	100
19	38	38	8.1	91.9	90-100
13.2	147	185	39.4	60.6	56-88
4.75	191	376	80.0	20.0	16-36
2.36	28	404	86.0	14.0	4-19
0.3	32	436	92.8	7.2	2-10
0.075	31	467	99.4	0.6	0-8

AFTER EXTRACTION(Trail-2)

Weight of Sample : 465 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0.0	100.0	100
19	38	38	8.2	91.8	90-100
13.2	147	185	39.8	60.2	56-88
4.75	191	376	80.9	19.1	16-36
2.36	28	404	86.9	13.1	4-19
0.3	32	436	93.8	6.2	2-10
0.075	28	464	99.8	0.2	0-8

Note:-
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End of Report

TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2020-01-20-52** **Date: 18-12-19**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.
Customer Reference	:	BBMP/EE/BTP/WO/112/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	16-12-19
Type of Mix	:	BC-Plant (Bituminous Concrete)
Date of test	:	16-12-19
Oven Dry Weight	:	5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	89	89	1.8	98.2	90-100
9.5	702	791	15.8	84.2	70-88
4.75	895	1686	33.7	66.3	53-71
2.36	587	2273	45.5	54.5	42-58
1.18	492	2765	55.3	44.7	34-48
0.6	503	3268	65.4	34.6	26-38
0.3	528	3796	75.9	24.1	18-28
0.15	458	4254	85.1	14.9	12-20
0.075	350	4604	92.1	7.9	4-10
PAN	396	5000	100	0.0	0

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Vidyaranyapura Sub Division
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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2020-01-20-52** **Date: 19-12-19**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.
Customer Reference	:	BBMP/EE/BTP/WO/112/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	16-12-19
Type of Mix	:	BC(Bitumenous Concrete)
Date of test	:	16-12-19

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID : **CP-RW-2020-01-20-52** **Date: 19-12-19**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.

Customer Reference : BBMP/EE/BTP/WO/112/2019-20

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 16-12-19

Type of Mix : BC (Bituminous Concrete)

Date of test : 16-12-19

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.8		
Strength	Aggregate Impact Value	22.1	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.68	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.21	Maximum 2%	IS:2386 Part III

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TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2020-01-20-52** **Date: 19-12-19**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.
Customer Reference	:	BBMP/EE/BTP/WO/112/2019-20
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	16-12-19
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	16-12-19

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.51	2-4
3	Percent air Voids	4.82	4.83	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	71.63	65-75
6	Density, g/cc	2.25	2.26	–

Note:-

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : **CP-RW-2020-01-20-52** **Date: 29-12-19**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.

Agency : Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.

Customer Reference : BBMP/EE/BTP/WO/112/2019-20

Source of Sample : Sample supplied by Agency

Date of Receipt : 27-12-19

Type of Mix : BC (Bituminous Concrete)

Date of test : 27-12-19

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	477	476
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	4.60	4.80
4	Average percentage	%	4.7	

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Lab ID : **CP-RW-2020-01-20-52** **Date: 29-12-19**

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 477

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.8	86.2	70-88
4.75	112	178	37.3	62.7	53-71
2.36	88	266	55.8	44.2	42-58
1.18	29	295	61.8	38.2	34-48
0.6	11	306	64.2	35.8	26-38
0.3	46	352	73.8	26.2	18-28
0.15	45	397	83.2	16.8	12-20
0.075	55	452	94.8	5.2	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 476

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.9	86.1	70-88
4.75	112	178	37.4	62.6	53-71
2.36	88	266	55.9	44.1	42-58
1.18	29	295	62.0	38.0	34-48
0.6	11	306	64.3	35.7	26-38
0.3	46	352	73.9	26.1	18-28
0.15	45	397	83.4	16.6	12-20
0.075	55	452	95.0	5.0	4-10

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TEST REPORT ON BITUMEN

Lab ID	:	**CP-RW-2020-01-20-52** **Date: 07-12-19**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.
Customer's Reference	:	BBMP/EE/BTP/WO/112/2019-20
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	06-12-19
Sample Type	:	Bitumen
Reference to BIS codes	:	IS: 1201-1220(1978) (Reaffirmed-2004)
Date of test	:	06-12-19

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	**64**	60 to 70
2	Softening Point, °C	**51.2**	Min. 40°C
3	Ductility, cm	**98**	Min. 75cm
4	Flash point, °C	**246**	Min. 220°C
	Fire point, °C	**272**	

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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID	:	**CP-RW-2020-01-20-52** **Date: 28-12-19**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Road, Drain and Asphalting to Road from Chandana Takis to Muneshwara Temple, Singapura Layout in Ward no 11 (kuvempunagara) Vidyaranyapura Sub Division.
Agency	:	Sri. Ashwathnarayana, #38, Chanappa Layout, Sharadambanagara, Jalahalli Village, Bangalore-560013.
Customer Reference	:	BBMP/EE/BTP/WO/112/2019-20
Sample Condition	:	Satisfactory
Date of Receipt	:	27-12-19
Type of Mix	:	Tack coat
Date of test	:	27-12-19

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

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